ICM-2* Motor Conversion Kit

Cancels: IIK 398B-60-3 IIK 320A-60-1
7-15-92

Installation Instructions
Part No. 319345-751 and -752

NOTE: Read the entire instruction manual before starting the installation.

*Integral Control Motor (ICM-2 denotes second generation).

INTRODUCTION

This instruction covers installation of an ICM-2 Motor Conversion Kit Part No. 319345-751 and -752 in upflow, gas-fired, variable-speed condensing furnaces.

NOTE: Due to the reduced accessibility to the filter caused by the ICM motor on right-side, return-air installations, an accessory side filter rack may be required to complete the installation.

SAFETY CONSIDERATIONS

Installation and service of heating equipment can be hazardous due to gas and electrical components. Only trained personnel should install or service heating equipment.

Untrained personnel can perform basic maintenance functions such as cleaning and replacing filters. All other operations should be performed by trained service personnel. When working on heating equipment, observe precautions in the literature, and on tags and labels attached to the unit.

Follow all safety codes. Wear safety glasses and work gloves. Have a fire extinguisher available.

DESCRIPTION AND USAGE

This kit is designed as a service replacement motor (in upflow furnaces) for a 2-piece, 1/3-hp electronically commutated motor (ECM) design, or for the first generation of ICM motors utilizing a square control box attached to the end bell.

Each ICM-2 motor is packaged with a blower door switch (1/2-hp motor only), several blower adapter harnesses, and a new plug bracket.

The extra parts supplied with this kit are not required when servicing models 320AAZ and 58VUA. With exception of the Installation Instructions, the parts in this kit can be used in mid-efficiency furnaces that are approved for use with variable-speed motors. Follow the instructions packaged with the mid-efficiency furnace accessory kit.

⚠ WARNING

Before beginning any installation or modification, ensure the main electrical disconnect switch is in the OFF position. Electrical shock can cause personal injury or death.

INSTALLATION

1. Turn OFF electrical supply to furnace.
2. Remove control and blower access doors.
3. Disconnect 9-pin connector from blower housing.
4. Disconnect thermostat leads and remove control box from bottom side of blower shelf and position control box to 1 side.
5. Using a back-up wrench, disconnect drain pipe at coupling in blower compartment.
6. Loosen hose clamp and remove 7/8-in. diameter drain hose from drain trap.
7. Loosen hose clamp and disconnect 5/8-in. diameter drain hose at bottom of inducer housing located under blower shelf.
8. Remove drain trap assembly.
9. Remove screws securing blower assembly to blower shelf and slide assembly out of furnace.
10. 1/3-hp, 2-piece ECM Only:
    a. Remove screws securing plug bracket to left side of blower housing.
    b. Disconnect motor connector from blower controller on back side of blower housing.
    c. Remove blower controller and mounting brackets from back side of blower housing. Discard mounting bracket. Discard controller, or return it for warranty credit if applicable.

NOTE: The blower door switch **must** be replaced with the switch supplied in the kit when replacing a 2-piece, 1/3-hp ECM motor.

    d. Install blower door switch.

⚠ CAUTION

The blower door switch **must** be replaced when converting to an ICM motor. The new motor in-rush current will damage the existing blower door switch.

    (1.) Remove the auxiliary J-box from the furnace casing.
    (2.) Remove auxiliary J-box cover.
    (3.) Remove blower door switch from auxiliary J-box and disconnect both wires. Discard blower door switch and position wires to 1 side.
    (4.) Replace 3/16-in. quick connects with field-supplied, insulated 1/4-in. quick connects on power leads inside auxiliary J-box.
    (5.) Connect power leads to blower door switch provided with ICM motor and reinstall switch in auxiliary J-box.
    (6.) Reinstall auxiliary J-box on furnace casing; ensure mounting screws do not pierce power leads.
    (7.) Reinstall auxiliary J-box cover.

11. First generation ICM motors only: Disconnect both connectors from motor.
12. Loosen setscrew holding blower wheel on motor shaft.
13. Remove bolts holding motor mount to blower housing and slide motor and mounts out of housing.

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14. Remove belly band and motor mounting arms from motor. Discard motor or return it for warranty credit if applicable.
15. Mount belly band and motor mounting arms on motor portion of ICM-2 motor as shown in Fig. 1.

NOTE: Before tightening the belly band around the motor, ensure the mounting arms are aligned properly so motor connectors will point down when the motor and mounts are assembled into the blower housing. (See Fig. 1.)

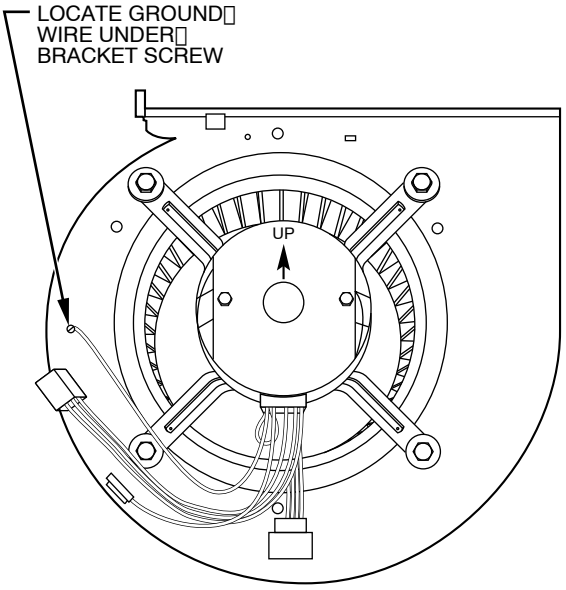

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Fig. 1—Blower Assembly

16. Reassemble blower by reversing items 12 and 13. Ensure blower wheel is centered in blower housing; rotate wheel to check clearance.

Step 1—Variable-Speed Outdoor Unit

If the furnace is set up for variable-speed operation with a compatible variable-speed outdoor unit, perform the following steps:

1. Remove screws securing plug bracket to right side of blower housing. Discard plug bracket and old blower adapter harness.
2. Connect blower adapter harness Part No. 319076-301 to blower motor. (See Fig. 1.)
3. Connect 6-pin plug from tap harness Part No. 320050-301 to 6-pin receptacle on blower adapter harness Part No.319076-301.
4. Install 9-pin receptacle on blower adapter harness Part No. 319076-301 and 15-pin receptacle on tap harness Part No. 320050-301 into new plug bracket supplied with kit.
5. Install new bracket in same position as old bracket (15-pin connector will be at the top).
6. Install 15-pin tap plug into 15-pin receptacle in tap harness Part No. 320050-301. (See Fig. 2.)
7. Connect wires in tap plug as shown in Table 1.

Step 2—Two-Speed Outdoor Unit

For model 398B/58SXB Furnaces set up for 2-speed operation with a compatible 2-speed outdoor unit, perform the following steps:

1. Remove 9-pin receptacle on old blower adapter harness from plug bracket on right side of blower housing and disconnect blue and pink wires from relay mounted in plug bracket. Discard old blower adapter harness.
2. Connect blower adapter harness Part No. 319076-301 to blower motor. (See Fig. 1.)
3. Install 9-pin receptacle on blower adapter harness Part No. 319076-301 into plug bracket on right side of blower housing.
4. Cut wire tie on blower adapter harness Part No. 319067-301 and plug blue wire into pin 12, and pink wire into pin 8 of relay mounted on plug bracket.
5. Connect 6-pin plug from tap harness Part No. 320050-301 to 6- pin receptacle on blower adapter harness Part No. 319076-301.
6. Install 15-pin receptacle on tap harness Part No. 320050-301 into new plug bracket supplied with kit.
7. Mount plug bracket to blower wrapper as shown in Fig. 3 using 2 field-supplied sheet metal screws.
8. Install 15-pin tap plug into 15-pin receptacle in tap harness Part No. 320050-301. (See Fig. 2.)
9. Connect wires in tap plug as shown in Table 2.

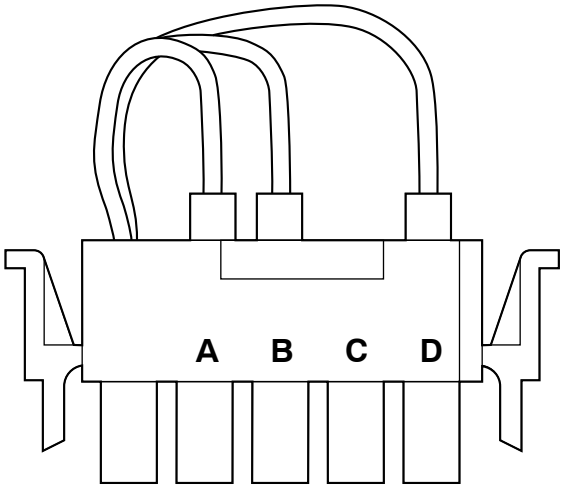

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Fig. 2—Tap Plug

Table 1—Variable-Speed Torque Taps

OUTDOOR UNIT	FURNACE SIZE	WHITE WIRE	BLACK WIRE	RED WIRE
024	060	B	D	A
036	060	B	B	A
	080	B	B	A
	100	B	D*	A

*When installing 1/2-hp motor kit Part No. 319345-751 in 100 size furnace, connect black wire to B.

Step 3—Standard Installations

This includes all remaining variations not detailed in this instruction.

1. First generation ICM motors only—Remove screws securing plug bracket to right side of blower housing. Discard plug bracket (if used) and old blower adapter harness.
2. Connect blower adapter harness Part No. 319076-301 to motor. (See Fig. 1.)
3. Install 9-pin receptacle on blower adapter harness Part No. 319076-301 into new plug bracket supplied with kit.
4. Install new bracket in same position as old bracket (9-pin connector will be at the bottom).

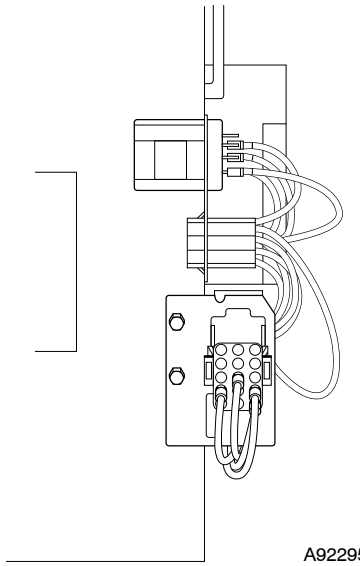

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Fig. 3—Blower With New Bracket Installed

Step 4—Reassembly

1. Reinstall blower assembly in furnace.
2. Inspect drain trap and hoses to insure they are not blocked or restricted. Reinstall drain trap and hoses; ensure hose clamps are properly positioned.

Table 2—Two-Speed Torque Taps

OUTDOOR UNIT	FURNACE SIZE	WHITE WIRE	BLACK WIRE	RED WIRE
036	060	A	A	B
	080	A	A	B
	100	A	A	D*
048	100	A	A	B
060	100	A	A	B

*When installing 1/2-hp motor kit Part No. 319345-751 in 100 size furnace, connect red wire to B.

3. Using a back-up wrench, attach drain pipe and tighten compression coupling.
4. Reinstall control box on bottom side of blower shelf.
5. Reconnect thermostat leads.
6. Connect 9-circuit connector from control box to blower adapter harness connected to motor. Connector is polarized for correct assembly—DO NOT force.
7. When using tap harness Part No. 320050-301, connect red wire to thermostat terminal R and blue wire to terminal C.
8. Reinstall control and blower access doors.
9. Turn ON electrical supply to furnace.
10. Check blower for proper rotation and speed changes between low- and high-heat and cooling—operate unit 10 minutes and check for condensate leaks.

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